CONCEPT PLAN

Southern California Veterans Cemetery

Irvine, California

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Prepared for:

State of California Department of General Services
Project Management and Development Branch

OWEN

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ACRONYMS AND ABBREVIATIONS

Abbreviations	
Asbestos-Containing Building Materials	ACM
Amended and Restated Development Agreement	ARDA
Best Management Practices	BMP
California Department of Veterans Affairs	CalVet
California Environmental Quality Act	CEQA
Department of General Services	DGS
Department of the Navy	DON
Environmental Impact Report	EIR
Environmental Impact Statement	EIS
Federal Aviation Administration	FAA
Irvine Ranch Water District	IRWD
Lead-Based Paint	LBP
Low Impact Development	LID
Marine Corp Air Station	MCAS
National Cemetery Administration	NCA
Orange County Great Park	OCGP
Rough-Order Magnitude	ROM
Regional Water Quality Control Board	RWQCB
Southern California Edison	SCE
Southern California Veterans Cemetery	SCVC
State Cemetery Grants Program	SCGP
State Cemetery Grant's Service	SCGS
Technical Guidance Document	TGD
U.S. Department of Veterans Affairs	USDVA
Veterans Cemetery Grants Program	VCGP
Water Quality Managements Plan	WQMP

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1. EXECUTIVE SUMMARY

The proposed cemetery site is at the former Marine Corps Air Station (MCAS) El Toro in Irvine, California. The former MCAS El Toro is currently being redeveloped as the Orange County Great Park (OCGP), and the State of California, Department of General Services (DGS) is developing this Concept Plan for the acquisition and redevelopment of approximately 125 acres of the Great Park for the proposed Southern California Veterans Cemetery (SCVC). This conceptual design work (Concept Plan) is required for pre-application for a U.S. Department of Veterans Affairs grant proposal.

The purpose of this Concept Plan is to illustrate development of the SCVC over a 100-year build-out timeframe. The Concept Plan outlines a process and strategy for the implementation of the entire cemetery including utility constraints, architectural and design concepts, environmental issues, a signage plan, grading and geotechnical considerations, landscaping needs, phasing and associated cost estimates.

Design of the Cemetery

The overall intent of the proposed design is to create a monument to the service and sacrifice of California State Veterans. Part of this goal is accomplished through the inclusion of features that will make a lasting and memorable impression on visitors to the cemetery.

At full build-out the cemetery will supply 211,125 gravesites with 60,066 in-ground crypts, 645 oversize in-ground crypts, 55,614 in-ground cremains, and 94,800 columbarium niches, enough to serve the anticipate needs of veterans for the next 100 years. The burials will be accommodated by approximately 70 percent cremation and 30 percent precast in ground burials.

Phase 1-Scope of Work

This Concept Plan focuses on the activities and requirements for the construction of Phase 1 while showing how the site will expand through future phases to full build-out. Phase 1 of the SCVC encompasses several significant parts:

Phase 1 - Part 1- Site Preparation and Demolition (125 acres): Phase 1 of the Project will include the demolition of the entire 125 acre site. Demolition includes existing buildings, foundations, floors, floor slabs, concrete, and asphalt. The demolition also includes the removal of underground utilities.

Phase 1 - Part 2 – New Construction (28.3 acres):

Part 2A – New Construction of the cemetery which encompasses approximately 12.5 acres of the property and includes, rough and fine grading, utility trenching and installation, paving of drive aisles and access roads, landscaping, installation of 1,750 in-ground cremain burials,

3,250 columbarium niches, the administration / maintenance complex, ceremonial entrance, cortege assembly area, committal service shelter, flag / assembly area, and memorial walkway.

Part 2B – New Construction of the perimeter berms, walls, fences, and associated landscaping. This portion includes the construction of the retention / detention basins and drainage swale along the south western portion of the site. This area is approximately 15.9 acres.

Phasing

The cemetery layout has been developed to include flexibility through sequential phases which allows the cemetery to be completed on an as-needed basis determined by the burial demands anticipated over the next 100 years. The phased build-out is based on the existing site conditions and topography, utilities, construction cost, plot burial size, layout, overall site organization and layout. A total of 10 phases will complete the cemetery at full build out with Phase 1 constructing the core infrastructure and facilities needed for cemetery operation.

Architecture

Exterior finishes and architectural design will be in keeping with the local architecture of the region. The architectural style that is prevalent in the area is California Tuscan. Tuscan architecture is a timeless and rustic style that fits quite well with City of Irvine's dry seaside climate. This architectural type also reflects a calming but yet elegant style. The exterior materials will be a combination of smooth cement plaster, wood / wrought iron detailing and clay barrel tile roof system, as well as the arched recessed windows and doors, and low-pitched, tiled roof.

Landscaping

The landscape design incorporates the U.S. Department of Veterans Affairs (USDVA) mission of sustainability by using drought tolerant native plantings. This site has reclaimed water available for irrigation which is a resource not subject to drought restrictions; therefore, turf or decomposed granite or crushed rock atop burial areas may be used.

Adjacent Area Land Uses

Adjacent land uses include the OCGP, a new Irvine Unified School District High School, and residential, retail, and commercial uses. The cemetery site is bounded by Cadence Boulevard to the northwest, Pusan Street to the north, Irvine Boulevard to the east, a habitat restoration area to the south and southeast, and a golf course to the west.

Infrastructure

The assessment of existing site conditions at the cemetery property supplies a basis for infrastructure improvements needed for utilities, roadways and services. There are no anticipated off-site utility improvements.

Signage

A signage system for the SCVC has been established with the construction of Phase 1 improvements. This system is consistent with the USDVA standards and is designed to provide visitors with information, direction and regulations for the cemetery.

Control Tower – Building 372

The scope of work for Phase 1 includes the demolition of the control tower; however, there has been significant discussion with regards to the future use of the control tower building. The work required for renovation and repurpose will be costly and will include seismic structural retrofit, roof replacement, entire new HVAC installation, and entire new electrical system installation.

There are several options for the building and include demolishing the entire building, renovating the air-control tower only and demolish the remainder of the building, or renovate and repurpose the entire building.

State Cemetery Grants Program

Through the National Cemetery Administration (NCA) State Cemetery Grants Program (SCGP), the USDVA will provide funds for design and construction of the cemetery. The process to apply for the SCGP includes three steps: pre-application, preparation of interim report and assessment requirements, and application. The State Cemetery Grant's Service (SCGS) at the USDVA National Administration is the final arbiter of a State's proposed cemetery design. Through the three-level program, the USDVA ensures a collaborative process that contributes to likely success for the State in meeting all requirements, and reduces the chances for failed attempts.

This Concept Plan has been developed to include the content requirements published by the NCA.

The design in this Concept Plan has not been reviewed by USDVA and that having the site bisected in two and having two separate entrances present a challenge to the operation of the cemetery and additional structures (i.e. Maintenance Building, Committal Shelter, public restrooms) may be required.

Summary Estimate of Probable Cost – Phase 1

BUILIDNGS	
Administration Building	$848,400
Maintenance Building	$1,252,600
Committal Shelter	$182,400
CEMETERY AND ROADWAYS	
Site Clearing	$184,300
Hazardous Waste Remediation	$3,446,200
Site Demolition & Clearing (12.5 ACRES)	$2,484,700
Site Demolition & Clearing (Remaining site 112.5 Acres)	$6,205,000
Building Demolition & Disposal	$18,121,200
Site Improvements	$5,445,000
Site Development	$14,518,800
Site Utilities	$1,672,900
Escalation	$7,746,600
Construction Contingency at 5%	$3,105,400
PHASE 1 CONSTRUCTION COST SUBTOTAL (Note 1)	**$65,213,500**
SOFT COST	
A/E, Inspection, Special Consultants, Materials Testing Project/Construction Management, Agency Retained, CEQA (EIR/EIS), Mitigation/Surveys, Other Fees	$12,158,500
TOTAL PROJECT COST	**$77,372,000**

Note 1: Construction costs includes Contractor mark-up.

2. INTRODUCTION

2.1 Background

The City of Irvine prepared the OCGP Plan for the reuse of the former MCAS El Toro site in 2001. The plan included large areas of park, recreational uses, and open space. Other uses and activities in the plan included institutional, research and development, agriculture, educational, and various others uses. A strategy was incorporated in the OCGP Plan to assure the realization of the park, open space, and other public uses through dedication to the City of Irvine and other nonprofit or governmental entities via a Development Agreement.

The Development Agreement included a requirement for the dedication of land for public uses and for funding of certain infrastructure and public open space amenity improvements and their long-term maintenance by the buyers/developers, as well as any future owners of the OCGP site.

In 2014, Assembly Bill 1453 was introduced in the California legislature to establish a state veteran's cemetery in Orange County and was approved. The bill directed the California Department of Veterans Affairs (CalVet) to complete conceptual design work required for pre-application for a U.S. Department of Veterans Affairs grant proposal for the Southern California Veterans Cemetery. Specifically, the bill amended the Military and Veterans Code to require CalVet, in voluntary cooperation with local government entities in Orange County, to design, develop, construct, and equip a state-owned and state-operated Southern California Veterans Cemetery to be located at the site of the former MCAS, on 125 acres known as the Amended and Restated Development Agreement (ARDA) site in the OCGP in the City of Irvine. Following adoption of AB 1453, CalVet contracted with the California Department of General Services (DGS) to manage the planning of the project, including design, engineering, and environmental compliance tasks.

The SCVC at Irvine will provide for the burial needs of Veterans in Orange County.

2.2 Physical Settings and Constraints

Located in the former MCAS El Toro in the City of Irvine, the SCVC is a 125 acre site of flat, previously developed topography.

Figure 1: Site Photo

Figure 2: Additional Site Photos

Figure 3: View of Former Marine Corps Air Station Site

Adjacent land uses include the OCGP, a new Irvine Unified School District High School, and residential, retail, and commercial uses. The cemetery site is bounded by Cadence Boulevard to the northwest, Pusan Street to the north, Irvine Boulevard to the East, a habitat restoration area to the south and southeast, and a golf course to the west. Figures 1 thru 4 show various images of the site. Additional site imagery is included in Sheet L0.01 of the Drawings.

Figure 4: Orange County Great Park

2.3 Design Layout

The primary design objective for the SCVC is to create a place that commemorates the service and sacrifice of the State's Veterans by providing a dignified, serene, and beautiful setting upon the former El Toro air base. The design creates impressive views towards the surrounding landscape while shielding views into the site from neighboring communities.

3. LANDSCAPE ARCHITECTURE

3.1 Site Design

Phase 1 of the SCVC encompasses approximately 12.5 acres of the property. It includes 1,750 in-ground cremains burials, 3,250 columbarium niches, the administration / maintenance complex, ceremonial entrance, cortege assembly area, committal service shelter, flag / assembly area, memorial walkway, and supporting roads. These Phase 1 components are meant to meet the requirements of the initial program as described in the Veterans Cemetery Grants Program (VCGP) Space Program Analysis.

Please refer to the Landscape Architecture Plans for the Schematic Site Plan, Phasing Plan, Layout and Signage Plans, Irrigation Plans, Planting Plans, and Sections.

Entrance Area

The main entrance to the cemetery from Cadence Boulevard is aligned across from Pusan Street. Concrete screen walls mask the cemetery from the roadway and neighboring community. The wall is softened by an undulating berm that is planted with native low-water species in a variety of colors and textures. The wall opens at the formal entrance to the cemetery where visitors are welcomed with the cemetery's official entry signage. A divided road leads from the entrance gate to the central road network of the cemetery. Low plantings fill the median of the entrance road containing the Avenue of the Flags. The first exit from the site's main round-a-bout leads to a dual lane cortege that ends adjacent to the Administration building. Designed for 30 cars, the lane was engineered for ease of pull-out and located to be visible from the Director's office.

The FAA facility area is to remain in place and is directly in line of view of visitors entering the cemetery; therefore, screening is provided to the facility. A vegetated buffer with shrubs, trees, berms, and possible walls will provide screening from the entry road and Assembly Area. The FAA facility consists of a building, antennas, and paving.

Administration/Maintenance Complex Site Design

The Administration / Maintenance complex is sited close to the main entrance. The adjacent maintenance and service yard is screened with a vibrant landscape palette. Parking for 22 visitors and staff is located between the maintenance and administration buildings. A walkway and a small plaza lead to the visitors' entrance, the gravesite locator computer, and the restrooms.

Maintenance, service, and delivery vehicles have a separate entrance from Cadence Boulevard. The Maintenance yard has been sized for the turning radius of semi-trucks.

Columbarium Court

The layout of the columbarium courts emphasize the radial pattern of the cemetery. The units are accented with planting reliefs and tree canopy shade. Each cluster can be accessed directly from the road on accessible concrete pathways. Units are set a minimum of 10 feet apart for accessibility and to give visitors a sense of private space in front of each unit. The columbarium are 5 units high in multiples of 8 units long.

Committal Service Shelter Area

The location of the committal service shelter is closely situated to the main entrance road, the administration building, and the cortege lane. Located on a separate loop road, the shelter provides views into the radial columbarium courts. Designed to accommodate thirty cars, the road is approached on the right for ease of turning for the cortege.

The shelter sits at the end of the loop road, providing direct access for the hearse and the family vehicle. To provide sufficient standing area for internment services, a large concrete patio extends from under the roof of the shelter and is supplemented by an additional area of decomposed granite.

Flag Assembly Area

The Flag Assembly Area is situated on the far side of the entrance road in crypt field one. The assembly court is on axis with visitor's site lines as the center the cemetery and provides sweeping views towards the mountains. The National flag is flown on a 50 foot pole towards the center of the plaza. The California State and MIA flags are flown from 30 foot poles on either side.

Memorial Walk

The Memorial Walk provides locations for donated benches, sculptures and plaques to commemorate those who have served. The Walk begins across from the Administration Building. A radial concrete path follows the form of the cemetery moving visitors through a richly planted opening between Columbarium courts 1 through 4. Small, shaded plazas with seating between the Memorial Wall and Columbarium courts provide areas to showcase memorial features while visitors rest and reflect on those who have served.

Memorial Wall

The Memorial Wall is an alternative for families who wish to honor a loved one who has been buried off-site or at sea. The Memorial Wall is located midway along the Memorial Walk. The wall complements the architectural style of the adjacent columbarium and is decorated with plaques listing the veteran's name and service.

Burial Options

The cemetery has a combination of burial facilities to meet the desires of all Veterans. The proposed 211,125 burials will be accommodated by approximately 70 percent cremation and 30 percent precast in ground burials.

At full build-out, the cemetery will supply 211,125 gravesites with 60,066 in-ground crypts, 645 oversize in-ground, 55,614 in-ground cremains, and 94,800 columbarium niches, enough to serve the anticipate needs of veterans for the next 100 years. Phase 1 includes the necessary buildings and 5,000 gravesites- 1,750 in-ground cremains and 3,250 columbarium niches.

For cremated remains, burial will be in freestanding double columbarium wall niches or in-ground cremains burials. Walls are arranged in courts of three to eight walls for a total of 2,000 to 12,400 niches in a single court. The architectural style of the walls are to match the California Tuscan building style.

Of the 60,711 crypt burials planned for the cemetery, 95 percent will be 3 foot by 8 foot plots, with the remaining 5 percent as over-sized 5 foot by 10 foot plots. Full casket burials will utilize pre-placed double depth vaults. The burial areas are divided into 32 crypt fields. The sections are separated by vegetated edges and slopes. Since the site has reclaimed water available the site can use turf or decomposed granite (a local crushed rock). The site is relatively flat and therefore accommodating slopes less than 2 percent can be achieved with minimal grading. Edges along the street would be planted with a colorful significant vegetated edge.

In addition to burial sites, the plan incorporates a memorial wall for those who do not desire burial on site but want to be memorialized as a veteran. The wall consists of 40 plaques in five rows mounted on a stucco wall with a cast stone cap flanked by stucco columns.

3.2 Planting and Irrigation

Recycled Water Availability and Crypt Field Material

Recycled water use is virtually a drought-proof source of water that can be used for irrigation purposes. It is a safe, industry-recommended method that is also available in unlimited quantities. The availability of recycled water provides the optional use of turf over the frequently substituted decomposed granite. The advantages and disadvantages of using turf versus decomposed granite are shown below.

Turf	
Advantages	***Disadvantages***
Allows more comfort to visitors who wish to sit at a burial	May be perceived as a wasteful due to water restrictions
Allows for use of the local water district's recycled water	Requires frequent maintenance (mowing, fertilizer, etc.)
Softens the landscape – appeals to the iconic image of a Veterans Cemetery	
Mitigates heat island effect	
Permeable	
Decomposed Granite	
Advantages	***Disadvantages***
More accessible material than turf	Increased heat of site
Requires less water than turf	Requires maintenance (raking, watering to reduce dust, etc.)
Permeable	Maximum cross-slope must be less than 2 percent

Climate based strategy

According to US Climate Data, Orange County's dry climate accounts for only 14.4 inches of precipitation annually. The planting design of the SCVC utilizes native low water use plants as well some adapted non-invasive trees, shrubs, groundcovers, and perennials. These plants reflect the character of Orange County and meet the necessary demand of low water usage.

Plant Communities

The planting design employs a variety of native species for a diverse range of use. Native trees and woody shrubs will be utilized for the vegetative edges between crypt fields. Water tolerant natives will be planted along the site's stormwater easements and detention basin. Vibrant native shrubs with seasonal color and county approved street trees will line the exterior site wall at both Cadence Boulevard and Pusan Street. Within the columbarium courts and at key visitor assembly points, the Administration building, Committal Shelter, and Flag Assembly area, a mixture of evergreen and deciduous plants will creates a pattern of varying textures, colors, and heights to provide seasonal interest. Flowering specimen trees, palms, and succulents will also be utilized within these areas as vibrant accents.

Selected Species

Trees:
Acacia farnesiana - Sweet Acacia
Butia capitata - Pindo Palm
Fraxinus velutina - Arizona Ash
Olea europaea – Olive
Phoenix dactylifera - Date Palm
Pistacia chinensis - Chinese Pistache
Quercus agrifolia - Coast Live Oak
Quercus lobata - Valley Oak
Schinus molle - California Pepper Tree
Ulmus parvifolia - Chinese Evergreen Elm

Cacti / Succulents:
Agave Americana - Century Plant
Agave geminiflora - Twin Flowered Agave
Agave parryi - Agave Parryi
Senecio mandraliscae - Kleinia

Grasses:
Leymus condensatus 'Canyon Prince' - Wild Rye
Muhlenbergia rigens - Deer Grass
Pennisetum setaceum - Fountain Grass

Shrubs:
Arctostaphylos sunset - Manzanita
Arctostaphylos uva ursi - Bearberry Kinnikinnick
Artemesia californica - California Sagebush
Baccaris pilularis - Dwarf Coyote Brush
Brahea aramata - Mexican Blue Palm
Dendromecon rigida - Bush Poppy
Encelia californica - Coast Sunflower
Leucospermum cordifolium - Nodding Pincushion
Myrica californic - Pacific Wax Myrtle
Olea europaea 'Little Ollie' - Olive
Phormium 'Black Adder' - Black New Zealand Flax
Salvia clevlandii - Cleveland Sage
Salvia leucophylla - Purple Sage
Santolina chamaecyparissus - Lavender Cotton
Sphaeralcea ambigua - Apricot Mallow

4. GRADING AND DRAINAGE PLAN

4.1 Drainage Pattern

The site is relatively flat and drains from the northeast to the southwest. The grading design maintains the natural drainage patterns and maintains consistency with the OCGP Master Drainage plan. The adjacent areas to the northeast are currently under development and based on review of the plans, it is anticipated there will be no off-site storm water run-on.

Tentative Map 17008 shows a proposed stormwater drainage easement to be located along the western boundary of the project site; however, since there is no off-site run-on to this site, the easement dedicated to the City of Irvine will most likely not be required. The conceptual site design reserves this area for drainage improvements.

The OCGP Master Drainage Plan shows that the project drains to the Agua Chinon Channel at the south eastern corner of the project, connection P15 (Parcel 20/21 drain). It is assumed that the construction of the golf course access road will include this storm drain connection. Currently, we will assume this construction will be part of the golf course access road work (by others).

A preliminary hydrology report should be prepared by the design team for the California Environmental Quality Act (CEQA) Environmental Impact Report (EIR) to demonstrate how the impacts to this project will be reduced to less than significant.

4.2 Grading

The conceptual grading plan shows flow patterns and estimated slopes in order to identify approximate design storm discharges for each storm drain facility. The site grading design is anticipated to be close to the existing grades and perpetuate the existing drainage pattern. Due to the design of Cadence Boulevard the entrance to the site is approximately 15 feet above the site; therefore the main entrance roadway will be sloped at no greater than 5 percent in order to connect to existing grades at the site.

A unique challenge for any cemetery development is that it requires a substantial amount of earthwork and excavation to accommodate the burial sites and, in particular, the burial crypts which create a void of 5.3 cubic yards each. The crypt construction will require raising the site in many areas to accommodate this excess fill. Ideally, earthwork would be balanced by phase, though this is not always readily achievable. Therefore, moving of materials to the future phase areas (either export or import) would be used to minimize earthwork costs.

4.3 Low Impact Development (LID)

The conceptual design includes the initial runoff management planning for the development and describes how the impacts of this project will be reduced. The goal of design and construction will be to comply with the requirements of low impact development (LID), which is a design approach to mitigate the impacts of urban and storm water runoff by using design techniques that infiltrate, filter, store, evaporate, and detain runoff close to the source of rainfall. LID is a set of best management practices (BMPs) that are designed to effectively remove nutrients, bacteria, and metals while reducing the volume and intensity of storm water flows.

In accordance with the County of Orange/Santa Ana Regional Water Quality Control Board's (RWQCB) guidance, a conceptual Water Quality Management Plan (WQMP) should be prepared by the design team during the environmental review process. The information contained in the WQMP will be discussed in the environmental impact report/environmental impact statement (EIR/EIS) and contribute to the analysis of environmental impacts of the project.

The current project site has been previously developed and has significant impervious surfaces, e.g. roads, building and airport tarmac. The project proposes to remove almost all of previous improvements; therefore, significantly reducing the volume and intensity of the existing storm water flows. Therefore; under the current guidelines for North Orange County Technical Guidance Document (TGD) this project should not have to mitigate for hydromodification impacts.

Phase 1 has the largest area of impervious development, which include the main entry road, maintenance building and yard, administration building, and parking. The recommended strategy is to design the permanent BMP's for the maintenance yard and administration buildings in Phase 1. The columbarium areas will be designed to direct runoff to landscaped areas. There will also be temporary BMP's surrounding the limits of construction where the subsequent phases will remove these temporary BMP's. It is not recommended to design a massive BMP for the design build-out at Phase 1 because new design criteria may be required in the future.

BMP design should first consider infiltration BMP's. According to the Orange County Hydrologic Soil maps, the hydrologic soil group for this project site is Type A and B; therefore, infiltration is anticipated to be good. The design geotechnical report should include infiltration tests in the areas of proposed BMP's to determine the feasibility of infiltration. Special consideration needs to be given to the areas of ground water contamination where infiltration may be restricted.

BMP design should also consider harvest and reuse for irrigation purposes. If this is applied to the roof areas of the building, this sustainable option can be included at a minimal cost. The remainder of the site runoff from the paved and impervious areas should treated by bio-filtration.

5. SITE CHARACTERISTICS

5.1 Site Demolition

There are approximately 77 buildings (both residential and nonresidential) remaining on the site. Many of these remaining buildings and facilities may contain hazardous building materials such as asbestos-containing building materials (ACM) and lead-based paint (LBP).

As part of Phase 1, all existing improvements associated with the former MCAS should be removed from the project site, as required by the Department of the Navy (DON), Federal Aviation Administration, and other agencies with jurisdiction over the site. A limited number of existing structures and infrastructure will remain in place. Following demolition of these improvements, the site would be prepared for implementation of the project.

A flight control tower, Building 372, located at the south-eastern side of the cemetery site, is not occupied. There is discussion on repurposing and occupying this building by local Veterans groups, however, the exact future use of this building is not known. This building may be determined to be demolished. There is additional discussion below regarding this building.

Adjacent to the flight control tower building is an existing Federal Aviation Administration (FAA) easement that occupies 1.7 acres. The City of Irvine staff has previously stated that the FAA building is currently operational and occupied and will not be demolished. Utilities and access to the building and site need to be maintained at all times. Heritage Fields is the organization that is responsible for installing the permanent utilities to the FAA property. In recent discussions with the City of Irvine staff, the City of Irvine and Heritage Fields has not yet determined the locations of the permanent utilities at the time of this report.

A comprehensive soil survey should be conducted during the design of Phase 1. The purpose is to identify as much as possible any impacted soil on the project site. Then additional assessments may be required by the overseeing regulatory agencies, including DTSC, to determine if it is related to a known release or a previously undocumented release. Additionally, a robust Soil Management Plan would be required to ensure that contaminated soil encountered at any stage of the SCVC development is characterized, profiled, and managed appropriately.

Any existing on-site sub-surface utility infrastructure should not be used. All sub-surface utility infrastructures on site should be removed. As a cost savings measure utilities can be abandoned in place; however, this can create a long term maintenance problems if the utilities are able to convey water and create erosion and sink holes. Additionally, future excavations can be problematic when encountering abandoned utilities. Another cost savings measure is to remove all the utilities within each phase of construction, at the beginning of each phase over the 100-year project build out. The costs for the removal of all existing utilities on the entire 125 acres

are included in the Phase 1 cost estimate. These potential cost savings option are not reflected in the estimate.

The review of relevant agreements indicates that Heritage Fields is currently responsible for demolition of runways on the proposed Veterans Cemetery site. That obligation is found in the 2010 Amended and Restated Master Implementation Agreement between the City and Heritage Fields. However, there is no timing specified for the demolition of that hardscape. Further, absent Heritage Fields' consent, the obligation to demolish those runways will terminate upon the City's transfer of the ARDA site to another entity or the State. The cost estimate includes the costs for the demolition of the site hardscape.

The proposed demolition will result in storm water flows that have significantly more sediment and debris. To ensure water quality, a delisting basin is recommended to be constructed at Phase 1. Appropriate erosion and sediment control measures shall be maintained at all times.

5.2 Reuse of Onsite Materials

The project site is relatively flat with a significant amount of asphalt, concrete, foundations, and structures that will be demolished. While the hazardous materials assessment concludes the inability to reuse any subsurface foundations, the on-surface asphalt and concrete can be crushed and reused for berms, subject to the hazardous materials assessment provided in this report. The tarmac onsite that will be removed is anticipated to be a minimum of 18-inches thick.

5.3 Analysis of Infrastructure

Proposed on-site utilities will connect to the utilities in Cadence Boulevard. These utilities include a 10-inch water line, a 12-inch sewer, and a 12-inch recycled water, which are considered adequate to serve the needs of the cemetery.

Proposed onsite utilities will include a new potable water meter, new sewer point of connection, and a new reclaimed/irrigation water meter.

Drainage and Storm Drain

There is a 66-inch storm drain pipe on Cadence Boulevard; however, due to the southwesterly flow of drainage onsite, there will be no need to tie into it the storm drain at Cadence. Instead, the design in Phase 1 calls for a de-silting basin at the southwest corner of the site. The storm water flows ultimately discharge into the Agua Chinon corridor, and it is anticipated that construction of the golf course access road will include the construction of the culvert and storm drain outfall.

Water

The Irvine Ranch Water District (IRWD) is the jurisdictional agency responsible for plan approval and water service to the project area. There is a 10-inch water line on Cadence Boulevard that Phase 1 of this project will feed off. A new potable water meter and lateral will be part of Phase 1 construction.

Sanitary Sewer

The Irvine Ranch Water District (IRWD) is the jurisdictional agency responsible for plan approval and sewer service to the project area. There is a 12-inch sewer line on Cadence Boulevard that Phase 1 of this project will connect to. A new sewer lateral from Cadence Boulevard to the site will be part of Phase 1 construction.

Electrical, Gas and Communications

Southern California Edison (SCE) serves the project via two primary substations. The Southern California Gas Company is the gas provider for the area. AT&T is the communications provider for the area. All services are located in Cadence Boulevard and anticipated to be available for this project.

Recycled Water

There is a 12-inch recycled water main in Cadence Boulevard for irrigation. A new water meter and lateral from Cadence Boulevard to the site will be part of Phase 1 construction. Recycled Water is a resource not affected by drought conditions.

Landscape Lighting

Due to the operational hours of the cemetery, exterior landscape lighting is limited. Security lighting for staff to safely exit the administration and maintenance buildings, and fixtures to illuminate the adjacent parking lot, are necessary. Lighting for other features throughout the site including the committal shelter, assembly center, cemetery entrance and decorative accent lighting are optional.

Pollution Control

The site design includes a trash enclosure and the local trash service will take refuse off the site.

Security

The perimeter of the cemetery is bordered by an 8 foot split face concrete block screening wall along Cadence Boulevard, Pusan Street, and Irvine Boulevard and an 8 foot steel fence along the future golf course, golf course access road, the storm water easement, the Agua Chinon corridor, and Irvine Boulevard. The cemetery visitor entrances will be controlled by a manual swing gate and lock. The maintenance entrance will be controlled by a manual rolling gate and lock. Options for automatic gates are available.

5.5 Utilities to FAA Facility

FAA occupies a 1.7 acre easement adjacent to the flight control tower. This building will not be demolished and will remain in place and operational.

There are temporary utilities serving the FAA facility, and the Heritage Field/Five Points developer will eventually install permanent utility infrastructure to the site. The locations of these utilities are unknown at this time, and future design changes to this concept may be required when the locations of these utilities are known.

5.6 Control Tower – Building 372

The scope of work for Phase 1 includes the demolition of the control tower; however, there has been significant discussion with regards to the future use of the control tower building. There are several options available for the future use of the building:

1. Demolish the entire building and develop for cemetery purposes.
2. Renovate the air-control tower, demolish the remainder of the building, and build a new smaller facility.
3. Renovate and repurpose the entire building.

The work required for renovation and repurpose will be costly and will include seismic structural retrofit, roof replacement, entire new HVAC installation, and entire new electrical system installation. The existing building is probably much larger than the proposed uses.

5.7 Offsite Utility Improvements

All utility points of connection are on Cadence Boulevard near the maintenance area entrance. It is anticipated that these utilities have sufficient capacity for our project and that no offsite utility upgrades are required.

5.8 Hazards and Hazardous Materials

In discussions with the City of Irvine staff, when the site is transferred to the State, the State will be responsible for the environmental remediation if contaminated soil is discovered during excavation.

There are two areas identified on the project site that have various institutional controls. As a result, future development of these areas may be somewhat restricted, depending on the proposed

uses and activities. Some of these restrictions may be lifted as remediation actions are deemed complete. Attachment 1 describes these areas in more detail and a summary is presented below:

FOST 7 area contains contaminated ground water and is located on and around the air control tower building 372 and the FAA facility. It is assumed that surface improvements are and will be allowed; therefore, there are only roadway and columbarium niches proposed. Additionally, the development of these areas are proposed to be completed in Phases 7 and 10.

FOST 8 area has significant instructional controls/restrictions. This is area is located at the eastern portion of the site adjacent to the Navy property. It is assumed that no development will be allowed. Additionally, there is a buffer area of restrictions that is anticipated to be removed in the future and development should be allowed to occur. Burials within this area will not be developed until Phase 10 of construction.

6. ROADWAY SYSTEMS

The 125 acre site cemetery site is bounded by Cadence Boulevard to the northwest, Pusan Street to the north, Irvine Boulevard to the east, a habitat restoration area to the south and southeast, and a golf course to the west. A golf course access road easement anticipated within the site at the southern boundary. Cadence Boulevard transects the cemetery site. For the purpose of design, Cadence Boulevard and Pusan Street (which are currently under construction) are assumed to be completed and fully functional roads at the commencement of Phase 1 construction. At the intersection of Pusan Street and Cadence Boulevard is the proposed primary entrance to the cemetery. A maintenance vehicle driveway will be constructed north of the primary entrance on Cadence Boulevard. A secondary entrance will also be constructed north-east of the primary entrance, off of Pusan Street for access to remainder of the site.

6.1 Phase 1 Roadway Improvements

The main entry from the traffic loop at Cadence Boulevard and Pusan Street is a two lane per direction roadway with a center median. The entry roadway will lead to a traffic loop, with the right side leading to a one way per direction roadway that includes a two lane funeral cortege assembly area which can accommodate up to 30 vehicles. This road will lead to the columbaria and memorial walk, administration building, and the committal service shelter. The roadway loops down and leads to the Assembly Area, and finally loops back to the main entry/exit. At full build-out, it will serve as part of the main road that loops through the cemetery.

The visitor/employee parking area for the administration and maintenance buildings includes 22 standard parking spaces and 3 accessible parking spaces. The parking area also provides access to the maintenance yard.

The maintenance yard has a non-public secondary access on Cadence Boulevard, which will normally be utilized for large delivery vehicles only. The secondary access also serves as an emergency vehicle access for the site.

The driveway entrance from Pusan Street for access to the eastern portion of the site should be constructed in Phase 1.

6.2 Golf Course Access Road Easement

In coordination with the City of Irvine, a separate access road to the golf course at the westerly side of the site will need to be provided. The construction of this road is not anticipated to be part of this project, and assumed to be constructed by others. The specifics of the road should be identified in the deed transfer and is not part of this Concept Plan. The plans reflect a golf course access road easement at the southern boundary of the site.

6.3 Phases 2-10 Onsite Roadway Improvements

Roadway construction is accompanied with each burial build-out.

6.4 Offsite Improvements

Pusan Street and Cadence Boulevard are fully developed streets from right-of-way to right-of-way. Utilities in these streets are anticipated to have the capacity for the full project build out; therefore no offsite utility improvements or street widening are anticipated to be required for the development of the cemetery project site.

7. GEOTECHNICAL SOIL SURVEY FOR BURIALS

The planned development is feasible from a geotechnical engineering point of view, provided the geotechnical recommendations presented in the report are followed. The on-site soils from the existing ground level to about 15 feet below grade predominantly consist of loose silty sand and clayey sand.

A preliminary geotechnical report was prepared and is provided as Attachment 3.

8. ENVIRONMENTAL CONSTRAINTS

Existing environmental documentations associated with the project site has been reviewed as well as site visits conducted in order to identify environmental constraints and mitigations. The full study is found in Attachment 1: "Southern California Veterans Cemetery Environmental Constraints Study" prepared by Dudek. The tables below identify the summary of environmental constraints:

Phase 1 Summary of Environmental Constraints

Summary of Potential environmental Constraints	***Impact Analysis/Mitigation Strategy***
Land Use and Planning	
Consistency with the existing zoning	Land Use Consistency Assessment
Aesthetics	
Consistency with visual character and/or quality of the project site and surrounding area	Visual Simulations
	Off-site frontage improvements such as screening walls, landscape setbacks, pedestrian sidewalks, curb/gutter and storm drains, and potentially half-width roadway buildout (including landscaped median) within the adjacent right-of-way
Air Quality and Greenhouse Gas Emissions	
Proximity of off-site sensitive receptors to on-site construction activities, equipment, and related construction emissions	Air Quality and Greenhouse Gas Emissions Assessment
	Construction Health Risk Assessment
	Tier 4 Construction Equipment
Biological Resources	
Potential suitable habitat for sensitive wildlife and plant species, nesting birds, and roosting bat species	Biological Resources Assessment
	Preconstruction Surveys
	Soil Salvage and Monitoring Plan (if necessary)
	Burrowing Owl Exclusion Plan (if necessary)
	NCC In-Lieu Mitigation Fees (if applicable)
Cultural Resources	
Potential for cultural resources, including historical resources, to occur on site	Cultural Resources Assessment
	Archaeological/Native American/Paleontological monitoring during ground disturbing construction activities.
Recently enacted AB 52 requirements	AB Consultation Coordination
Geology and Soils	
The project would likely be exposed to strong ground shaking over the life of the project	Adherence to all applicable building standards, including California Building Code
The project site is likely underlain by expansive soils	Adherence to all applicable building standards, including California Building Code

Hazards and Hazardous Materials	
Presence of contaminated superficial and subsurface soils on the project site	Soil Survey and Soil Management Plan
	Removal of contaminated soils from the project site
Existing structures may contain hazardous building materials such as ACM and LBP	Abatement of ACM and LBP, and removal of universal wastes from the project site
11-acre former landfill site (IRP Site 3) located within the approximately 20-acre LIFCO/FOST 8 area found on the project site	Adherence to the various use restrictions outlined in the FOST 8 report. Consult with oversight agencies.
Contaminated groundwater underlying Carve-Out Area/FOST 7 area located on the project site	Compliance with the various use restrictions outlined in the FOST 7 report. Consult with oversight agencies.
Hydrology and Water Quality	
General lack of engineered storm drain system under the existing conditions	Drainage Study
Contaminated groundwater underlying Carve-Out Area/FOST 7 area located on the project site	Preliminary WQMP
Noise	
Proximity of off-site sensitive receptors to on-site construction activities, equipment, and related construction noise	Noise Study
	Installation of temporary sound wall
Traffic and Circulation	
Project-related traffic could potential impact the performance of the local and regional circulation system	Traffic Study
	The project may be required to pay its fair share toward the list of NITM improvements included within the established NITM Program.
Project driveway/entrance limited to unsignalized facility	In lieu of a signalized intersection, any project driveway off Irvine Boulevard cannot be signalized, and alternative design features would need to be implemented at any vehicular access point off Irvine Boulevard to facilitate site ingress and egress (e.g., deceleration/acceleration lanes; right-in, right-out geometry).
Utilities and Service Systems	
Construction debris diversion requirements	At least 75% of all concrete and asphalt construction and demolition debris and 50% of all other construction and demolition debris shall be recycled. Preparation of a Waste Management Plan.

Excessive exterior water use	In lieu of traditional turf, the project design should predominantly utilize a variety of drought-tolerant species. Should turf be deemed necessary in certain area on the project site, water-efficient varieties should be installed.
	Water Supply Due Diligence Study

9. PRELIMINARY HAZARDOUS MATERIALS SITE ASSESSMENT

An assessment of the hazardous materials found on site and a contaminated soil evaluation has been conducted by Avocet Environmental, Inc. The full report is found in Attachment 2 "Summary Environmental Evaluation." The report concludes that MCAS El Toro is a very complex, albeit mature, site with numerous documented impacts and very probably other impacts that won't come to light until near-surface soil is disturbed during redevelopment. The proposed SCVC is located near the center of MCAS El Toro and very likely also encompasses multiple areas of impacted soil. As previously noted, this summary evaluation is based on the relevant FOST documents, which provide generally limited information. As such, Avocet adopted a conservative approach in identifying PECs and DRAs but makes no warranty regarding the completeness of the information presented in the FOST documents.

Demolition, redevelopment grading, foundation excavation, utility installation, and excavation for in-ground cremains and crypts will all involve soil disturbance, during which impacted soil could be encountered. In broad terms, contaminated soil encountered during demolition, redevelopment grading, foundation excavation, and utility installation could be addressed "up front" prior to the SCVC becoming operational. Excavation for in-ground cremains and crypts, however, likely would be a recurring activity that could go on for decades. In Avocet's opinion, it would be impractical to address contaminated soil disturbed by in-ground cremains and crypt excavation on a case-by-case basis. The alternative would be to over-excavate and recompact the entire SCVC to a depth of, say, 8 to 10 feet below ground surface prior to it becoming operational and address contaminated soil, as/if encountered, at that time. Of course, there are significant cost considerations with such an approach.

A comprehensive soil survey should be conducted during the design of Phase 1 to identify any additional contaminated soil not previously encountered. If impacted soil is encountered, additional assessment may be required by overseeing regulatory agencies to determine if it is related to a known release or a previously undocumented release. The estimate does not include the cost to abate contaminated soil if discovered as a result of the soil survey, nor does the estimate include the cost for involvement of overseeing regulatory agencies. Based on the findings of the survey, a robust soil management plan should be developed to ensure that contaminated soil encountered at any stage of the SCVE development is characterized, profiled, and managed appropriately.

10. PHASING PLAN

Phase One

Phase 1 - Part 1- Site Preparation and Demolition (125 acres): This part includes preparation of the project site for construction and includes the demolition of the buildings, roads, air field tarmac, and existing underground utilities.

Phase 1 - Part 2 – New Construction (28.3 acres):

Part 2A – New Construction of the cemetery which encompasses approximately 12.5 acres of the property. It includes 1,750 in-ground cremain burials, 3,250 columbarium niches, the administration / maintenance complex, ceremonial entrance, cortege assembly area, committal service shelter, flag / assembly area, memorial walkway, and supporting roads.

Part2B – New Construction of the perimeter berms, walls, fences, and associated landscaping. This portion includes the construction of the retention / detention basins and drainage swale along the south western portion of the site. This area is approximately 15.9 acres.

Phases Two through Ten

Project phasing will follow a sequential pattern, radiating off the central Administration Building. Phases closest to the Administration Building will be developed first, where the final phases across Cadence Boulevard will be built. The areas having more restrictions related to hazardous waste contamination associated with the operation of the former MCAS will also be developed last. Phasing establishes an even development of a diverse type of burial options. Roadway construction is accompanied with each burial build-out. Phasing for this project is estimated to be a 100-year build-out. At full build-out, the SCVC will provide 60,066 standard in-ground crypts, 645 oversize In-ground crypts, 55,614 In-ground cremains, and 94,800 columbarium niches.

Phase 2-10 Burial Counts

Phase	Columbarium niches	In-Ground Cremain	3x8 Crypt (Standard)	Oversize Crypt
Phase 2	19,470	6,279	6,370	64
Phase 3	40,160	9,960	0	0
Phase 4	0	0	6,751	75
Phase 5	0	37,625	0	0
Phase 6	0	0	7,369	99
Phase 7	0	0	11,878	121
Phase 8	0	0	7,811	81
Phase 9	0	0	9,778	102
Phase 10	31,920	0	10,109	103

11. ARCHITECTURE

11.1 Scope

This project includes four building structures; Administrative building and Public building, Maintenance building, and Committal Service Shelter. The Administrative and Public buildings are joined together by a connecting breezeway.

The scope of this Concept Plan is to provide a preliminary design and program for user spaces based on the guidelines provided by the NCA Facilities Design Guide document for a large-size cemetery. The proposed new Maintenance, Administration, and Public buildings are Type V-B wood construction, fully sprinklered with concrete-slab-on-grade foundation. The committal shelter is concrete masonry block, non-sprinklered, with concrete-slab-on-grade. The Maintenance and Administration buildings have been arranged to accommodate future expansion of vehicle storage and offices. Refer to the architectural plans and building elevations.

Code Analysis

The proposed structures should be designed according to the most current California Building Code (CBC) and conform to the Title 24 ADA guidelines for barrier free access. This includes an accessible path of travel from the building(s) to accessible site features including but not limited to, sidewalks, building to building access, restrooms / locker rooms / shower, accessible parking stall(s), crosswalks and ramps as required.

The following are applicable codes that should be used:

- 2013 Building Standards Administrative Code, Part 1, Title 24 C.C.R.
- 2013 California Building Code (CBC), Part 2, Title 24 C.C.R.
- 2014 California Electrical Code (CEC), Part 3, Title 24 C.C.R.
- 2013 California Mechanical Code (CMC), Part 4, Title 24 C.C.R.
- 2013 California Plumbing Code (CPC), Part 5, Title 24 C.C.R.
- 2013 California Energy Code, Part 6, Title 24 C.C.R.
- 2013 California Fire Code, Part 9, Title 24 C.C.R.
- 2013 California Referenced Standards, Part 12, Title 24 C.C.R.
- 2013 Title 19 C.C.R., Public Safety, State Fire Marshal Regulations.

Code Summary									
General Building Summary									
Building Name	Occupancy Group (Ch. 3)	Construction Type(Table 601)	Sprinkler Type	Height		Stories		Areas	
				Allowable (Table 503)	Actual	Allowable (Table 503)	Actual	Allowable Per Building Area Modification (Table 530)	Actual (SF)
Administration / Visitors	B	V-B	NFPA 13	40 FT	19'-8"	1	1	9000 SF	1633 SF
Breezeway	B	V-B	NFPA 13	40 FT	29'-0"	1	1	9000 SF	402 SF
Committal Shelter	A-3	V-B	None	40 FT	14'-6"	1	1	6000 SF	1019 SF
Maintenance	S-1	V-B	NFPA 13	40 FT	31'-8"	1	1	9000 SF	3152 SF

Additional code requirements are listed in Appendix A.

Refer to Appendix E for Plumbing fixture count and Appendix F for Furniture Schedule.

11.2 Functional Analysis of Building Program

Refer to Appendix C for the VCGP "Building Space Program," and Appendix D for the "Building Space Code Analysis.

Administrative Building

Administrative building services the staff and public. Areas generally consist of offices, work areas, break room, conference room and a public lobby / waiting area including a family restroom.

Public Information Building

Public Information Building services the staff and public. Areas generally consist of public and staff restrooms, grave locator kiosk, entry vestibule, janitor closet, mechanical room and electrical room.

Breezeway

The breezeway acts as a sheltered connector to the Administrative and public building and creates a focal point to the buildings.

Maintenance Building

The Maintenance building services staff and honor guard. No public access. Areas generally consist of offices, locker rooms, restrooms, break rooms, parts and tool storage, service bay, vehicle and equipment storage, wash bay and flammable storage.

Committal Service Shelter

The Committal Service Shelter to service the staff and public. Area consists of a covered gathering space opened to the exterior and a storage support space to house support equipment for the shelter.

11.3 Materials Analysis and Character Defining Features

Exterior finishes and architectural design should be consistent with the local architecture of the region. The architectural style that is prevalent in the area is undoubtedly California Tuscan. This was determined by reviewing details and materials from historic structures like the ones within the campus of the University of Southern California, as well as existing residences and housing tracts, important commercial buildings and developments being planned around the proposed cemetery.

Tuscan architecture is a timeless and rustic style that fits quite well with City of Irvine's dry seaside climate. This architectural type also reflects a calming but yet elegant style. The exterior materials used are a combination of smooth cement plaster, wood / wrought iron detailing and clay barrel tile roof system, as well as the arched recessed windows and doors, and the low-pitched, tiled roof. The exterior materials will be a combination of smooth cement plaster, walls covered with vines, stone walls with subtle earth tones, wood / wrought iron detailing and clay barrel tile roof system.

11.4 Interior Finishes

Interior finishes vary from building to building depending on the user function. Usage of warm colors that represent subtle earth tones is best recommended for this style.

The proposed Administration building interior finishes mainly consist of carpet and linoleum flooring, painted gypsum board walls, acoustical ceilings / gypsum board soffits, and operable dual pane windows.

The proposed Public building interior finishes mainly consist of ceramic tile and sealed concrete flooring, painted gypsum board walls, full height ceramic tile (restrooms) and painted gypsum board ceilings.

The proposed Maintenance building interior finishes mainly consist of carpet and linoleum flooring, painted gypsum board walls, acoustical ceilings / gypsum board soffit where appropriate, and operable dual pane windows at the office and honor guard locations. The vehicle service areas and workshop have concrete sealed flooring, painted gypsum board walls at interior locations, cement plaster at exterior locations, and ceilings opened to structure above.

The Committal Service Shelter has exterior finish materials consisting of cement plaster walls, sealed concrete slab and painted cement plaster ceiling with exposed beams.

11.5 Sustainability

Sustainability is an important feature of the design. High efficiency mechanical equipment will be provided as well as low usage high-efficiency plumbing fixtures. Finishes will be selected to contain low VOC’s, rapidly renewable materials, and recycled content.

12. MECHANICAL SYSTEMS

12.1 General

The SCVC Phase 1 construction project compromises of 3 buildings:

1. Administration
2. Maintenance Building
3. Committal Service Shelter

These buildings are described in more detail in Section 12: Architecture.

12.2 Design Criteria

External Design Conditions

Location:	Irvine, Orange County, California
Latitude:	33.70°
Elevation:	50’ Above Sea Level
Climate zone:	8
Summer Design:	88° dry bulb; 68° wet bulb
Winter Design:	33° F
Mean Daily Range:	27 ° F
Geographic Location:	Approximately 11 miles inland from the Pacific Ocean

Internal Air Temperature

Offices and support areas:

Winter:	70° F
Summer:	75° F
Electrical rooms:	Maintain maximum 10° F above ambient.
Mechanical rooms:	Maintain maximum 10° F above ambient.

Data obtained from Title 24 Appendix C California Design Location Data, outdoor design conditions at frequency level of 0.5 percent for summer Dry blub and Wet Bulb temperatures.

Ventilation requirements

Offices:	15 cfm per person
Toilets:	10 air changes per hour

Internal Noise Criteria

The following noise criteria from mechanical services will be achieved:

Offices:	NC35
Toilets and Corridors:	NC40

Insulation Requirements

Insulation thickness and R-value shall exceed the requirements of Title 24 by at least 20 percent.

13. COST ESTIMATE SUMMARY

Phase 1:

An estimate of probable costs for the project has been completed by Lenax Construction Services Appendix G. The estimate includes a thorough break-down of the major components of the Phase 1 costs. The majority of the Phase 1 costs come from the demolition and environment remediation.

Phases 2-10:

The construction costs to build out the entire cemetery were not completed as part of this report.

Summary Estimate of Probable Cost – Phase 1

BUILIDNGS	
Administration Building	$848,400
Maintenance Building	$1,252,600
Committal Shelter	$182,400
CEMETERY AND ROADWAYS	
Site Clearing	$184,300
Hazardous Waste Remediation	$3,446,200
Site Demolition & Clearing (12.5 ACRES)	$2,484,700
Site Demolition & Clearing (Remaining site 112.5 Acres)	$6,205,000
Building Demolition & Disposal	$18,121,200
Site Improvements	$5,445,000
Site Development	$14,518,800
Site Utilities	$1,672,900
Escalation	$7,746,600
Construction Contingency at 5%	$3,105,400
PHASE 1 CONSTRUCTION COST SUBTOTAL (Note 1)	**$65,213,500**
SOFT COST	
A/E, Inspection, Special Consultants, Materials Testing Project/Construction Management, Agency Retained, CEQA (EIR/EIS), Mitigation/Surveys, Other Fees	$12,158,500
TOTAL PROJECT COST	**$77,372,000**

Note 1: Construction costs includes Contractor mark-up.

MEANS OF EGRESS (PER SECTION 1015.1):	ONE EXIT IS REQUIRED BASED ON OCCUPANT LOAD CALCULATION OF LESS THAN 50 OCCUPANTS. REFER TO TABLE 1015.1 - SPACES WITH ONE EXIT OR ACCESS DOORWAY
TWO EXITS OR EXIT ACCESS DOORWAYS (PER SECTION 10152.1):	WHERE TWO EXITS OR EXIT ACCESS DOORWAYS ARE REQUIRED FROM ANY PORTION OF THE EXIT ACCESS, THE EXIT DOORS OR EXIT ACCESS DOORWAYS SHALL BE PLACED A DISTANCE APART EQUAL TO NOT LESS THAN ONE-HALF OF THE LENGTH OF THE MAXIMUM OVERALL DIAGONAL DIMENSION OF THE BUILDING OR AREA TO BE SERVED MEASURED IN A STRAIGHT LINE BETWEEN EXIT DOORS OR EXIT ACCESS DOORWAYS.
MINIMUM EXITING WIDTH (PER SECTION 1005.1):	
DOORS:	02" PER OCCUPANT
GLASS AND GLAZING: CHAPTER 24 PER SECTION 2406	PROVIDE SAFETY GLASS IN DOORS AND IN PANELS ADJACENT TO DOORS WITHIN A 24" ARC OF EITHER VERTICAL DOOR EDGE WHEN CLOSED, AND WHERE BOTTOM EDGE IS LESS THAN 5 FT ABOVE WALKING SURFACE. 1. PROVIDE SAFETY GLASS IN FIXED OR OPERABLE PANELS WHERE INDIVIDUAL EXPOSED PANEL IS GREATER THAN 9 SF, BOTTOM EDGE IS LESS THAN 18" ABOVE FLOOR. 2. TOP EDGE IS GREATER THAN 36" ABOVE FLOOR, AND PANEL IS WITHIN 36" HORIZONTALLY OF A
ROOF SYSTEM FIRE CLASSIFICATION:	ROOF CLASS REQUIRED: CLASS C PER TABLE 1505.1. ROOF CLASS PROVIDED: CLASS A
DOOR HARDWARE (PER SECTION 1133B.2.5.2):	HAND-ACTIVATED DOOR OPENING HARDWARE, HANDLES, PULLS, LATCHES, LOCKS AND OTHER OPERATING DEVICES ON ACCESSIBLE DOORS SHALL HAVE A SHAPE THAT IS EASY TO GRASP WITH ONE HAND AND DOES NOT REQUIRE TIGHT GRASPING, TIGHT PINCHING OR TWISTING OF THE WRIST TO OPERATE. HARDWARE SHALL BE CENTERED BETWEEN 30 INCHES AND 44 INCHES ABOVE THE FLOOR. LATCHING AND LICKING DOORS THAT ARE HAND-ACTIVATED AND WHICH ARE IN A PATH-OF-TRAVEL SHALL BE OPERABLE BY LEVER-TYPE HARDWARE, PANIC BARS, PUSH-PULL ACTIVATING BARS, U-SHAPED HANDLES OR OTHER HARDWARE DESIGNED TO PROVIDE PASSAGE. LOCKED EXIT DOORS

FIRE PROTECTION NOTES
PORTABLE FIRE EXTINGUISHERS:

1. PORTABLE FIRE EXTINGUISHERS:
   A. PORTABLE FIRE EXTINGUISHERS SHALL BE PROVIDED WITH A MINIMUM RATING AND CAPACITY OF:
      1. A-3 OCCUPANCY: 10LB, 2A:20B:C
      2. ELECTRICAL AND EQUIPMENT ROOMS: IOLB, SA:20B:C.
      3. VERIFY REQUIREMENTS FOR ANY SPECIAL OCCUPANCY ROOMS WITH LOCAL FIRE DEPARTMENTS.
   B. PORTABLE FIRE EXTINGUISHERS SHALL BE LOCATED TO MAINTAIN A MINIMUM OF ONE EXTINGUISHER PER 3,000 S.F. (OR ANY PORTION THEREOF) AND A MAXIMUM OF 75 FEET TRAVEL DISTANCE TO ANY EXTINGUISHER, VERIFY REQUIRED DISTANCE WITH FIRE DEPARTMENT INSPECTIONS DIVISION PRIOR TO INSTALLATION.
   C. PORTABLE FIRE EXTINGUISHERS SHALL BE MOUNTED IN CABINETS. THE TOP OF THE EXTINGUISHER SHALL BE MOUNTED BETWEEN 36" AND 60" A.F.F.
   D. WHERE EXTINGUISHERS ARE LOCATED ALONG AISLES WITHIN EQUIPMENT OR STORAGE AREAS PROVIDE A VISIBLE MARKING ON THE COLUMN OR WALL TO INDICATE THE EXTINGUISHER LOCATION.
2. FIRE DEPARTMENT GENERAL REQUIREMENTS: A. CONTRACTOR SHALL CONFIRM THAT KNOX BOXES ARE LOCATED ADJACENT TO BUILDING ACCESS DOOR TO PROVIDE ACCESS TO FIRE PROTECTION SYSTEM EQUIPMENT.
3. FIRE EXTINGUISHERS TO COMPLY W/ TITLE 19. FIRE EXTINGUISHERS SHALL HAVE A SERVICE TAG AFFIXED TO THEM WHICH PROVIDES PROOF THEY HAVE BEEN INSPECTED AND SERVICED BY A LICENSED FIRE EXTINGUISHER INSPECTOR. (ALL LOCATIONS ARE SUBJECT TO CHANGE AT FIRE INSPECTOR'S DISCRETION),

Occupancy Load Factors	
(Per CBC 2013 Table 1004.1.2)	
Accessory Storage Areas, Mechanical Equipment Room	300 Gross/Occupant
Assembly Without Fixed Seats - Unconcentrated (tables & Chairs)	15 net/Occupant
Business Areas	100 Gross/Occupant
Industrial Areas	100 Gross/Occupant
Parking Garages	200 Gross/Occupant

VCGP Building Space Program			
	FINAL NET SF	**VA CRITERIA**	**VARIANCE**
Cemetery Type			
Annual Burials			
Employees			
Space			
Administrative/Visitors			
Entry Vestibule	110	150	**-40**
Lobby (Breezeway?)	304	215	**89**
Janitor/Kiosk	28	25	**3**
Men's Toilet - Public	134	115	**19**
Women's Toilet - Public	129	115	**14**
Unisex toilet	0	0	**0**
Family toilet	51	52	-1
Waiting Room (4-6 persons)	153	155	**-2**
Reception/Cemetery Representative	150	150	**0**
Closet	14	10	**4**
Operations (files, office equipment)	150	150	**0**
Director's office	150	150	**0**
Conference Room	162	165	**-3**
Mechanical/Electric	98	95	**3**
Subtotal	**1,633**	**1,547**	**86**
Maintenance/Operations			
Foreman's Office	123	125	**-2**
Honor Guard (kitchenette, lockers & toilet)	274	260	**14**
Boots & Lockers	120	110	**10**
Closets (IT and Coat)	50	10	**40**
Shower/Toilet (Toilet Only)	85	75	**10**
Wash Bay	537	540	**-3**
Service Bay	607	600	**7**
Parts & Tool Storage	147	150	**-3**
Air Compressor	48	50	**-2**
Flammable Storage cabinet	24	25	**-1**
Vehicle and Equipment Storage	1105	1,100	**5**
Mechanical Room	32	0	**32**
Subtotal	**3,152**	**3,045**	**107**
Committal Service Shelter			
Covered Area	894	900	**-6**
Storage Room	125	125	0
Subtotal	**1019**	**1,025**	**-6**
General*			
Break Rooms (admin + Maint)	171	165	**6**
Janitor Closet	39	40	**-1**
Halls (Admin + Maint)	192	90	**102**
Subtotal	**402**	**295**	**107**
TOTALS:	**6,206**	**5,912**	**294**

Notes:

Building program is driven by the annual workload and cemetery staffing and is divided into 4 categories; Rural, Small, Medium and Large.

The area guidelines listed above are based on Net Square Footage and represent the maximum allowance by use space. Maximum allowable Gross Square Footage may be 118% of net.

* If the Administration and Maintenance Buildings are combined there will be one space shared space. If the buildings are seperated there will be one space for each.

VCGP Building Space Code Analysis			
	AREA (Net SF)	**Occ. Factor**	**Occ. Load**
Cemetery Type			
Annual Burials			
Employees			
Space Name			
Administrative/Visitors			
Entry Vestibule	110	100	**2**
Breezeway	304	100	**4**
Janitor/Kiosk	28	300	**1**
Men's Toilet - Public	134	N/A	**0**
Women's Toilet - Public	129	N/A	**0**
Unisex toilet	0	N/A	**0**
Family toilet	51	N/A	0
Waiting Room (4-6 persons)	153	15	**11**
Reception/Cemetery Representative	150	100	**2**
Closet	14	N/A	**0**
Operations (files, office equipment)	150	100	**2**
Break Room	81	100	**1**
Director's office	150	100	**2**
Hallway	108	N/A	**0**
Conference Room	162	15	**11**
Mechanical/Electric	98	300	**1**
Subtotal	**1,822**		**37**
Maintenance/Operations			
Foreman's Office	123	100	**2**
Honor Guard (kitchenette, lockers & toilet)	274	15	**19**
Boots & Lockers	120	100	**2**
Break Room	91	100	**1**
Closets (IT and Coat)	50	300	**1**
Shower/Toilet (Toilet Only)	85	N/A	**0**
Hall Way	115	N/A	**0**
Wash Bay	537	300	**2**
Service Bay	607	300	**3**
Parts & Tool Storage	147	300	**1**
Janitor Closet	39	300	**1**
Air Compressor	48	300	**1**
Flammable Storage cabinet	24	300	**1**
Vehicle and Equipment Storage	1105	200	**6**
Mechanical Room	32	300	**1**
Subtotal	**3,397**		**41**
Committal Service Shelter			
Covered Area	894	15	**60**
Storage Room	125	300	1
Subtotal	**1019**		**61**
TOTALS:	**6,238**		

Public Fixture Count				
(2013 CPC Table 422.1)				
Occupant Load	Based on Group B - Office or Public Buildings (Area Accessible to the Public)			
	Based on Group S-1			
	Fixture	Total Required	Total Provided	Remarks
Administration/Vistors Building (Group B & A)				
Total Occupant Load per CBC Table A: 16				
Service Sink & Laundry Tray	Mop Sink	1	1	Janitor mop sink in Room P-102
Drinking Fountain 1 per 150	Hi/Lo Fountain	1	1	
Restroom Fixtures: Male 8 Occupants				
Water Closets 1 per 1-50	WC	1	1	
Urinals 1 per 1-100	Urinal	1	1	
Lavatories 1 per 1-75	LAV	1	1	
Restroom Fixtures: Female 8 Occupants				
Water Closets 1 per 1-15	WC	2**	2	
Lavatories 1 per 1-50	LAV	1	1	
Unisex Restroom				Additional restroom provided
	WC	0	1	
	LAV	0	1	
Maintenance Building (Group S, B & A)				
Total Occupant Load per CBC Table A: 14				
Restroom Fixtures: Male 7 Occupants	WC			
Water Closets 1 per 1-50	WC	1	1	

Urinals 1 per 1-100**	Urinal	0	0	
Lavatories 1 per 1-75	LAV	1	1	
Restroom Fixtures: Female 8 Occupants				
Water Closets 1 per 1-15	WC	1	1	
Lavatories 1 per 1-50	LAV	1	1	
Drinking Fountain*				No public access, substituted with indoor water stations

* Section 415.2 - Where food is consumed indoors, water stations shall be permitted to be substituted for drinking fountains. Drinking fountain shall not be required for an occupant load of 30 or less.

** The total number of required water closets for females shall be not less than the total number of required water closets and urinals for male, this requirement shall not apply when single occupancy toilet facilities are provided for each sex in an A or E occupancy with an occupant load of less than 50.
Either:

a. The required urinal shall be permitted to be omitted or
b. If installed, the urinal shall not require a second water closet to be provided for the female.

Furniture Schedule					
Administration & Public Building			**Maintenance Building**		
Room	**Count**	**Description**	**Room**	**Count**	**Description**
A-100 Waiting Room			M-101 Break Room		
	2	Single Lounge Chair		1	Table with Seating
	1	4 Seat Bench		1	Microwave
	1	3 Seat Bench			
	2	End Table	M-103 Foremans Office		
				1	Printer
A-102 Conference Room				1	Workstation Computer
	1	Tackboard		1	Workstation Chair
	1	Conference Table with Seating		1	Lateral 4 Drawer File Cabinet
	1	Storage Shelfing System			
			M-104 Honor Guard Kitchen		
A-103 Operations				1	Table with Seating
	1	Copy Machine		1	Microwave
	1	Fax Machine		1	Refrigerator
	1	Printer			
	2	Workstation Computer	M-105 Honor Guard Lockers		
	2	Workstation Chair		10	Metal Lockers
	1	Base File Cabinet		1	Locker Room Bench Seating
	1	Storage Shelfing System			
	1	Wall Mounted Drawing Storage	M-107 Boots & Lockers		
				11	Metal Lockers
A-104 Break Room				1	Locker Room Bench Seating
	1	Table with Chairs			
	1	Microwave	M-110 Parts & Tool Storage		
	1	Refrigerator		1	Storage Shelfing System
A-105 Receptionist					
	3	Lateral 4 Drawer File Cabinet			
	2	Workstation Computer			
	2	Workstation Chair			
A-106 Directors Office					
	1	Printer			
	1	Workstation Computer			
	1	Workstation Chair			
	1	Storage Shelfing System			
	1	Lateral 4 Drawer File Cabinet			
	1	Credenza Workstation/Storage			
	1	Fire-Proof Safe			
	3	Meeting Chairs			

Lenax Construction Services Inc.

prepared for:

OWEN Group

Independent Construction Cost Estimate

CONCEPT PHASE: ROM ESTIMATE

State of California Department of General Services Project Management and Development Branch

Southern California Veterans Cemetery

Estimating
Cost Analysis
CPM Scheduling
Claims Management
Construction Progress

June 10, 2016

3700 Wilshire Blvd., Suite 560
Los Angeles, CA 90010-2908
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Phone: 213-637-9146
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June 10, 2016

State of California Department of General Services Project Management and Development Branch

Southern California Veterans Cemetery

CONCEPT PHASE: ROM ESTIMATE

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Estimating
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Lenax
Construction
Services Inc.

Estimating
Cost Control
Claims Management
Construction Management

Our goal is simple... to help you reach yours.

June 10, 2016

Ken Jewel,PE
Project Manager
OWEN Group

220 Technology Dr. Ste 100
Irvine CA. 92618

Subject: *Cost Estimating Services*
OWEN Group
Southern California Veterans Cemetery
CONCEPT PHASE: ROM ESTIMATE

Dear. Mr. Jewel,

Enclosed is for your information and review the ROM Construction Estimate for the above-referenced project.

Very truly yours,
LENAX CONSTRUCTION SERVICES, INC.

George Elkin, CPE
Senior Cost Estimator

Reviewed by:

Oleg Zeetser, CPE
Director of Engineering

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[redacted]

June 10, 2016

OWEN GROUP
Southern California Veterans Cemetery
Independent Estimate of Probable Construction Cost
CONCEPT PHASE: ROM ESTIMATE
ESTIMATE CRITERIA

1. SCOPE

Phase 1 - Part 1- Site Preparation and Demolition (125 acres): Phase 1 of the Project will include the demolition of the entire 125 acre site. Demolition includes existing 77 buildings (1,037,139 SF), foundations, floors, floor slabs, concrete, and asphalt. The demolition also includes the removal of underground utilities. Erosion and sediment control measures will be maintained at all times during the demolition.

Phase 1 - Part 2 – New Construction (28.3 acres):

Part 2A – New Construction of the cemetery which encompasses approximately 12.4 acres of the property and includes, rough and fine grading, utility trenching and installation, paving of drive aisles and access roads, landscaping, installation of 1,750 inground cremation burials, 3,250 columbarium niches, the administration / maintenance complex (2,149 SF/3,849SF), ceremonial entrance, cortege assembly area, committal service shelter (1,076SF), flag / assembly area, and memorial walkway.

Part2B – New Construction of the perimeter berms, walls, fences, and associated landscaping. This portion includes the construction of the retention / detention basins and drainage swale along the south western portion of the site. This area is approximately 15.9 acres.

2. DRAWINGS

The estimate is based on Basic Scope Developed by OWEN Group, dated May, 2016

3. ESTIMATE FORMAT

This estimate is presented in Construction Cost Estimate following uniformat break down and report costs at the major building component level. The Building and Sitework direct costs has been combine at the overall summary with markups prorates.

4. QUANTITIES

All scope is quantified for each building trade or system from the documented information. In the event that information is not fully complete, we have used our professional knowledge of technical building systems to allocate proper allowances and contingencies.

5. SOURCES FOR PRICING

The estimated cost information was derived from the several industry accepted data base sources trade publications, such as R.S. Means, BNI Building News, Craftsman (National Estimator). These sources were used as a basis along with the estimator's professional judgment to adjust for this specific project type, location, size, and complexity.

6. CONTRACT PROCUREMENT AND MARK-UPS

The Construction contract procurement method is Design-Bid-Build. The mark-up structure used in this estimate for the general contractor reflects similar percentages used in Lenax's estimate of the previous similar projects. This includes 12% for General Conditions / General Requirements and 6% for GC fee, 2% for bonds.

7. DESIGN/CONSTRUCTION CONTINGENCY

An allowance of 10% for sitework/buildings is included in this cost estimate for Design Scope Contingency & Construction Contingency.

8. CONSTRUCTION SCHEDULE / ESCALATION

The ROM Construction Cost Estimate is 2016 dollars. The escalation cost is excluded.

9. PROJECT SOFT COST - Excluded

SPECIFIC EXCLUSION (SOFT COST)

1 Professional design and consulting fees.
2 General building permit.
3 Testing fees.
4 Owner's field inspection costs.
5 Construction / Program management fees.
6 Plan check fees and building permit fees.
7 Furnishings, fixtures and equipment (FF&E)/Group II, unless listed otherwise
8 Owner-furnished items.
9 Move-in costs or maintenance costs after move-in.
10 Financing and carry costs .
11 LEED commissioning agents. (Assumed to be contracted directly with owner)

10. POTENTIAL VARIANCES FROM THIS COST ESTIMATE

The following items could affect the construction cost and, therefore, could be the cause of a variance from this estimate of probable cost.

1 Modifications to the scope of work included in the drawings and/or specifications used as a basis for this estimate.
2 Restrictive technical specifications or excessive or unpredictable contract conditions.
3 Any specified item of equipment, material, or product that cannot be obtained from at least three different source.
4 Bid procurement other than listed and assumed by this estimate.
5 Bids delayed beyond the projected schedule.
6 Construction schedule before or after the schedule used in this estimate.

11. ASSUMPTIONS MADE IN COST ESTIMATE

1 The site will be fully accessible during normal working hours.
2 Demolition will be done during 1st Phase
3 Construction contract procurement method is Design Build Contractor.
4 Prevailing Wage Structure. Owner Controlled Insurance Program.
5 Attempting LEED certification

Lenax Construction Services staff of professional cost consultants has prepared this estimate with principles and practices coinciding with the cannons and code of ethics of the American Society of Professional Estimators. This staff is available to discuss its content to any interested party.

Estimate Summaries

Estimating
Cost Analysis
CPM Scheduling
Claims Management
Construction Progress

Lenax

Project: Southern California Veterans Cemetery
DESCRIPTION: CEMETERY, ROADWAY & BUILDINGS
Location: Irvine, California
CONCEPT PHASE: ROM ESTIMATE

Lenax Construction Services Inc.

BUILDING GSF : 7,056
Phase 1 Site Area : 544,500

ITEM	DESCRIPTION	QUANTITY		UNIT COST/SF	TOTALS
	SUMMARY ESTIMATE				
	BUILDINGS				**$1,885,573**
	ADMINISTRATION BUILDING	2,149	SF	$326.00	$700,574
	MAINTENANCE BUILDING	3,831	SF	$270.00	$1,034,370
	COMMITTAL SHELTER	1,076	SF	$140.00	$150,629
	CEMETERY & ROADWAY				**$42,970,652**
	HAZARDOUS WASTE REMEDIATION	1,012,714	SF	$2.81	$2,846,000
	SITE DEMOLITION & CLEANING	5,445,000	SF	$4.09	$22,293,567
	SITE IMPROVEMENTS	544,500	SF	$8.26	$4,496,671
	SITE DEVELOPMENT	544,500	SF	$22.02	$11,990,055
	SITE UTILITIES	544,500	SF	$2.47	$1,344,359
	BUILDING & SITE DIRECT COST SUBTOTAL	**544,500**	**SF**	**$82.38**	**$44,856,225**
	GENERAL CONTRACTOR'S MARKUPS:				
	- GENERAL CONDITIONS	12.0%		$762.87	5,382,747
	- GC OVERHEAD & FEE	6.0%		$427.21	3,014,338
	- BOND	2.0%		$150.95	1,065,066
	SUBTOTAL CONSTRUCTION COST			**$99.76**	**54,318,376**
	ESTIMATE SCOPE DESIGN & CONSTRUCTION CONTINGENCY	10.0%			5,431,838
	ESTIMATED CONSTRUCTION COST W/O ESCALATION			**$109.73**	**59,750,214**

Estimate Detail

Estimating
Cost Analysis
CPM Scheduling
Claims Management
Construction Progress

Lenax

Project: **Southern California Veterans Cemetery**
DESCRIPTION: CEMETERY & ROADWAY
Irvine, California
CONCEPT PHASE: ROM ESTIMATE

Lenax Construction Services Inc.

PHASE 1 SITE AREA (SF) : **544,500**

ITEM		DESCRIPTION	QTY	UNIT	UNIT COST	TOTAL
		SITE SUMMARY ESTIMATE				
		HAZARDOUS WASTE REMEDIATION				**$2,846,000**
G1040		HAZARDOUS WASTE REMEDIATION	1,012,714	SF	$2.81	$2,846,000
		SITE DEMOLITION & CLEANING	5,445,000	SF		**$22,293,567**
G1010		SITE DEMOLITION/CLEARING	544,500	SF	$0.28	$152,225
G1020		SITE DEMOLITION & DISPOSAL (w/in 12.5 Acres)	544,500	SF	$3.77	$2,051,944
G1025		SITE DEMOLITION & DISPOSAL (Remainder of 125 Acres)	4,900,500	SF	$1.05	$5,124,330
G1025		BUILDINGS DEMOLITION & DISPOSAL (Remainder of 125 Acres)	1,012,714	SF	$14.78	$14,965,068
		SITE IMPROVEMENTS				**$4,496,671**
G1030		EARTHWORK	544,500	SF	$1.15	$623,957
G2010		ROADWAYS AND PARKING	544,500	SF	$1.04	$567,570
G2030		PEDESTRIAN PAVING	544,500	SF	$4.40	$2,395,022
G2050		LANDSCAPE	544,500	SF	$1.67	$910,122
		SITE DEVELOPMENT				**$11,990,055**
G2040		SITE DEVELOPMENT	544,500	SF	$22.02	$11,990,055
		SITE UTILITIES				**$1,344,359**
G3010		DOMESTIC/FIRE WATER	544,500	SF	$0.31	$170,800
G3030		STORM DRAIN SYSTEM	544,500	SF	$1.03	$558,500
G40		SITE ELECTRICAL UTILITIES	544,500	SF	$1.13	$615,059
		DIRECT CONSTRUCTION COST SUBTOTAL (W/O Markups)	**544,500**	**SF**	**$78.92**	**$42,970,652**

Project: **Southern California Veterans Cemetery**
DESCRIPTION: CEMETERY & ROADWAY
Irvine, California
CONCEPT PHASE: ROM ESTIMATE

Lenax Construction Services Inc.

PHASE 1 SITE AREA (SF) : **544,500**

ITEM		DESCRIPTION	QTY	UNIT	UNIT COST	TOTAL
G10		SITE PREPARATION	544,500	SF		**$25,139,567**
G1040		**HAZARDOUS WASTE REMEDIATION per Report by AVOCET ENVIRONMENTAL INC. (4/2716)**				
		Estimated Cost Associated with Impacted Soil	9,300	TON	$200.00	$1,860,000
		ESTIMATED COST ASSOCIATED WITH HAZARDOUS BUILDING COMPONENTS - ACM	92,000	SF	$8.00	$736,000
		ESTIMATED COST ASSOCIATED WITH HAZARDOUS BUILDING COMPONENTS - LBP and Universal Waste Removal	1	LS	$250,000.00	$250,000
		SUBTOTAL	**1,012,714**	**SF**	**$2.81**	**$2,846,000**
G1010		**SITE DEMOLITION/CLEARING**				
		CLEAR SITE OF TREES, SHRUBS, MISCELLANEOUS CONCRETE OR FOUNDATIONS AS ENCOUNTERED ALLOWANCE	12.50	AC	$10,000.00	$125,000
		MISC. SITE CLEARING	544,500	SF	$0.05	$27,225
		SUBTOTAL	**544,500**	**SF**	**$0.28**	**$152,225**
G1020		**SITE DEMOLITION & DISPOSAL (w/in 12.5 Acres)**				
		DEMOLITION OF BUILDING 3	175	SF	$12.00	$2,100
		DEMOLITION OF BUILDING 606	23,598	SF	$12.00	$283,176
		DEMOLITION OF BUILDING 892	672	SF	$12.00	$8,064
		REMOVE EXISTING WATER LINE	1,095	LF	$25.00	$27,375
		REMOVE EXISTING SEWER LINE	1,305	LF	$30.00	$39,150
		REMOVE EXISTING SEWER MANHOLES	5	EA	$1,200.00	$6,000
		REMOVE EXISTING ELECTRICAL LINE	4,000	LF	$15.00	$60,000
		REMOVE LIGHT / POWER POLES	18	EA	$1,000.00	$18,000
		REMOVE EXISTING GAS LINE	850	LF	$10.00	$8,500
		DEMO (E) REMOVE CONCRETE / ASPHALT PAVEMENT	57,733	SF	$1.00	$57,733
		DEMO (E) REMOVE HEAVY CONCRETE	431,055	SF	$1.75	$754,346
		DEBRIS DISPOSAL	10,500	CY	$75.00	$787,500
		SUBTOTAL	**544,500**	**SF**	**$3.77**	**$2,051,944**
G1025		**SITE DEMOLITION & DISPOSAL (Remainder of 125 Acres)**	**112.50**	**AC**		
G1025		DEMOLITION OF EXISTING UTILITY INFRASTRUCTURE AND SITE PAVEMENT Remainder of the Site - ALLOWANCE	4,900,500	SF	$0.66	$3,234,330
		DEBRIS DISPOSAL	25,200	CY	$75.00	$1,890,000
		SUBTOTAL	**4,900,500**	**SF**	**$1.05**	**$5,124,330**
G1025		**BUILDINGS DEMOLITION & DISPOSAL (Remainder of 125 Acres)**				
G1025		DEMOLITION OF 74 BUILDING/STRUCTURES for Remainder of 125 Acres	1,012,714	SF	$12.00	$12,152,568
		DEBRIS DISPOSAL	37,500	CY	$75.00	$2,812,500
		SUBTOTAL	**1,012,714**	**SF**	**$14.78**	**$14,965,068**
G20		**SITE IMPROVEMENTS**	**544,500**	**SF**	**$30.28**	**$16,486,726**

Project: **Southern California Veterans Cemetery**
DESCRIPTION: CEMETERY & ROADWAY
Irvine, California
CONCEPT PHASE: ROM ESTIMATE

Lenax Construction Services Inc.

PHASE 1 SITE AREA (SF) : **544,500**

ITEM		DESCRIPTION	QTY	UNIT	UNIT COST	TOTAL
G1030	**EARTHWORK**					
		ROUGH GRADING	544,500	SF	$0.12	$65,340
		OVER-EX/COMPACT, SITE FOR PAVING & LANDSCAPING -1'D	20,167	CY	$10.00	$201,667
		IMPORT FILL, 2 HRS. R/TRIP	20,167	CY	$15.00	$302,500
		EROSION CONTROL	544,500	SF	$0.10	$54,450
		SUBTOTAL	**544,500**	**SF**	**$1.15**	**$623,957**
G2010	**ROADWAYS AND PARKING**					
		MAINTENANCE YARD - LIMITED PAVING WALKWAY - AROUND BUILDING	53,229	SF	$10.00	$532,290
		MAINTENANCE BUILDING- Grading Recompaction	3,831	SF	$5.00	$19,155
		ADMINISTRATION BUILDING - Grading Recompaction	2,149	SF	$5.00	$10,745
		COMMITTAL SHELTER BUILDING - Grading Recompaction	1,076	SF	$5.00	$5,380
		SUBTOTAL	**60,285**	**SF**	**$9.41**	**$567,570**
G2030	**PEDESTRIAN PAVING**					
		CONCRETE WALK	43,485	SF	$8.00	$347,880
		ADA RAMPS	2	EA	$2,500.00	$5,000
		A.C. PAVEMENT	131,498	SF	$4.00	$525,992
		COLUMBARIUM PLAZA HARDSCAPE	115,333	SF	$10.00	$1,153,330
		ASSEMBLY AREA (ASSUMED CONCRETE PAVEMENT)	7,997	SF	$10.00	$79,970
		CONCRETE CURB & GUTTER	10,000	LF	$28.00	$280,000
		REGULAR PARKING SPACES	18	EA	$100.00	$1,800
		ADA PARKING SPACES	3	EA	$350.00	$1,050
		SUBTOTAL	**298,315**	**SF**	**$8.03**	**$2,395,022**
G2050	**LANDSCAPE**					
		IRRIGATION AREA	142,528	SF	$3.00	$427,584
		LANDSCAPED ISLANDS	68,934	SF	$7.00	$482,538
		SUBTOTAL	**142,528**	**SF**	**$6.39**	**$910,122**
G2040	**SITE DEVELOPMENT**					
		PICKET FENCE- 8'H	6,615	LF	$150.00	$992,250
		DRAINAGE SWALE 45'W w/Landscaping	3,014	LF	$400.000	$1,205,600
		DRAINAGE SWALE 20'W w/Landscaping	3,602	LF	$180.000	$648,360
		PERIMETER 8" CMU WALL STUCCO FINISH -9' H	7,393	LF	$700.0	$5,175,100
		PERIMETER DIRT BERM 20'W x 1' H w/Landscaping	3,746	LF	$150.000	$561,899
		PERIMETER DIRT BERM 10'W x 1' H w/Landscaping	3,647	LF	$115.000	$419,406
		ENTRANCE & EXIT GATES	1	LS	$200,000.00	$200,000
		TRASH ENCLOSURE	335	SF	$50.00	$16,750
		SIGNAGE	1	LS	$75,000.00	$75,000
		FLAGS (1-50'pole , 2-30' Poles)	3	EA	$4,000.00	$12,000
		MEMORIAL WALL	1	LS	$100,000.00	$100,000
		COLUMBARIUM NICHE FOOTINGS	2,283	SF	$250.00	$570,750
		PRECAST NICHES INCLUDING INSTALLATION OF COVERS ONLY and HARDWARE FOR COVERS (COLUMBARIUM'S)	3,250	EA	$210.00	$682,500
		INGROUND CREMAINS (Grading)	73,588	SF	$5.00	$367,940
		STANDARD INGROUND NICHE CREMAINS	1,750	EA	$550.00	$962,500
		SUBTOTAL	**544,500**	**SF**	**$22.02**	**$11,990,055**

Project: **Southern California Veterans Cemetery**
DESCRIPTION: CEMETERY & ROADWAY
Irvine, California
CONCEPT PHASE: ROM ESTIMATE

Lenax Construction Services Inc.

PHASE 1 SITE AREA (SF) : **544,500**

ITEM		DESCRIPTION	QTY	UNIT	UNIT COST	TOTAL
G30		**SITE MECHANICAL UTILITIES**	**544,500**	**SF**	**$1.34**	**$729,300**
G3010		DOMESTIC/FIRE WATER				
		PIPE 2"-8"	2,060	LF	$70.00	$144,200
		BLDG. POC	2	EA	$1,000.00	$2,000
		WATER METER	1	EA	$5,000.00	$5,000
		FIRE HYDRANT /PBFP ASSEMBLY	1	EA	$15,000.00	$15,000
		POC EXISTING WATER	1	EA	$2,500.00	$2,500
		FIRE DEPARTMENT CONNECTION	1	EA	$2,100.00	$2,100
		SUBTOTAL	**2,060**	**LF**	**$82.91**	**$170,800**
G3030		STORM DRAIN SYSTEM				
		SD 12-24" ALLOW	1,500	LF	$100.00	$150,000
		MANHOLE, INLET, CLEANOUT STRUCTURES - ALLOW	1	LS	$40,000.00	$40,000
		STORM WATER EASEMENT AREA	80,000	SF	$3.00	$240,000
		STORMWATER DETENTION BASIN AREA	14,125	SF	$6.00	$84,750
		SANITARY SEWER				
		PVC SDR 35	495	LF	$50.00	$24,750
		CONNECT TO BLDG. SITE	2	EA	$1,000.00	$2,000
		CONNECT TO EXISTING SEWER LINE	1	EA	$2,000.00	$2,000
		SEWER MANHOLES, CLEANOUT- ALLOWANCE	1	LS	$15,000.00	$15,000
		SUBTOTAL	**1,500**	**SF**	**$372.33**	**$558,500**
G40		**SITE ELECTRICAL UTILITIES**	**544,500**	**SF**	**$1.13**	**$615,059**
		SITE ELECTRICAL- NEW BUILDINGS	7,056	SF	$10.00	$70,559
		SITE LIGHTING	544,500	SF	$1.00	$544,500
		SUBTOTAL	**544,500**		**$1.13**	**$615,059**
		SITE DIRECT COST SUBTOTAL				**$42,970,652**

Project: **Southern California Veterans Cemetery**
DESCRIPTION: ADMINISTRATION BUILDING
Irvine, California
CONCEPT PHASE: ROM ESTIMATE

Lenax Construction Services Inc.

BUILDING GSF : **2,149**

ITEM		DESCRIPTION	QTY	UNIT	UNIT COST	TOTAL
		ROM SUMMARY COST ESTIMATE				
A10		FOUNDATIONS	2,149	SF	$23.00	$49,427
A20		BASEMENT CONSTRUCTION	2,149	SF		
B10		SUPERSTRUCTURE	2,149	SF	$12.00	$25,788
B20		EXTERIOR CLOSURE	2,149	SF	$80.00	$171,920
B30		ROOFING	2,149	SF	$21.00	$45,129
C10		INTERIOR CONSTRUCTION	2,149	SF	$36.00	$77,364
C20		STAIRS	2,149	SF		
C30		INTERIOR FINISHES	2,149	SF	$30.00	$64,470
D10		CONVEYING	2,149	SF		
D20		PLUMBING	2,149	SF	$20.00	$42,980
D30		HVAC	2,149	SF	$34.00	$73,066
D40		FIRE PROTECTION	2,149	SF	$8.00	$17,192
D50		ELECTRICAL	2,149	SF	$57.00	$122,493
E10		EQUIPMENT	2,149	SF		
E20		FURNISHINGS	2,149	SF	$5.00	$10,745
F10		SPECIAL CONSTRUCTION	2,149	SF		NONE
		DIRECT CONSTRUCTION COST SUBTOTAL (W/O Markups)	**2,149**	SF	**$326.00**	**$700,574**

Project: **Southern California Veterans Cemetery**
DESCRIPTION: MAINTENANCE BUILDING
Irvine, California
CONCEPT PHASE: ROM ESTIMATE

Lenax Construction Services Inc.

BUILDING GSF : **3,831**

ITEM		DESCRIPTION	QTY	UNIT	UNIT COST	TOTAL
		ROM SUMMARY COST ESTIMATE				
A10		FOUNDATIONS	3,831	SF	$20.00	$76,620
A20		BASEMENT CONSTRUCTION	3,831	SF		
B10		SUPERSTRUCTURE	3,831	SF	$14.00	$53,634
B20		EXTERIOR CLOSURE	3,831	SF	$55.00	$210,705
B30		ROOFING	3,831	SF	$23.00	$88,113
C10		INTERIOR CONSTRUCTION	3,831	SF	$39.00	$149,409
C20		STAIRS	3,831	SF		
C30		INTERIOR FINISHES	3,831	SF	$23.00	$88,113
D10		CONVEYING	3,831	SF		
D20		PLUMBING	3,831	SF	$17.00	$65,127
D30		HVAC	3,831	SF	$24.00	$91,944
D40		FIRE PROTECTION	3,831	SF	$10.00	$38,310
D50		ELECTRICAL	3,831	SF	$40.00	$153,240
E10		EQUIPMENT	3,831	SF		
E20		FURNISHINGS	3,831	SF	$5.00	$19,155
F10		SPECIAL CONSTRUCTION	3,831	SF		NONE
		DIRECT CONSTRUCTION COST SUBTOTAL (W/O Markups)	**3,831**	SF	**$270.00**	**$1,034,370**

Project: **Southern California Veterans Cemetery**
DESCRIPTION: COMMITTAL SHELTER BUILDING
Irvine, California
CONCEPT PHASE: ROM ESTIMATE

Lenax Construction Services Inc.

BUILDING GSF : **1,076**

ITEM		DESCRIPTION	QTY	UNIT	UNIT COST	TOTAL
		ROM SUMMARY COST ESTIMATE				
A10		FOUNDATIONS	1,076	SF	$20.00	$21,518
A20		BASEMENT CONSTRUCTION	1,076	SF		
B10		SUPERSTRUCTURE	1,076	SF	$30.00	$32,278
B20		EXTERIOR CLOSURE	1,076	SF	$20.00	$21,518
B30		ROOFING	1,076	SF	$30.00	$32,278
C10		INTERIOR CONSTRUCTION	1,076	SF	$10.00	$10,759
C20		STAIRS	1,076	SF		
C30		INTERIOR FINISHES	1,076	SF	$5.00	$5,380
D10		CONVEYING	1,076	SF		
D20		PLUMBING	1,076	SF		
D30		HVAC	1,076	SF		
D40		FIRE PROTECTION	1,076	SF		
D50		ELECTRICAL	1,076	SF	$25.00	$26,898
E10		EQUIPMENT	1,076	SF		
E20		FURNISHINGS	1,076	SF		
F10		SPECIAL CONSTRUCTION	1,076	SF		NONE
		DIRECT CONSTRUCTION COST SUBTOTAL (W/O Markups)	**1,076**	SF	**$140.00**	**$150,629**

State of California Department of General Services Project Management and Development Branch

Lenax Construction Services Inc.

Southern California Veterans Cemetery

OWEN Group

CONCEPT PHASE: ROM ESTIMATE

PROJECT AREAS & CONTROL QUANTITIES 06/10/16

PROJECT AREAS	SF	TOTALS SF
ENCLOSED AREAS		
Administration Building	2,149	
Maintenance Building	3,831	
Committal Shelter	1,076	
SUBTOTAL, ENCLOSED AREAS		**7,056**
TOTAL GROSS FLOOR AREA		**7,056**
EXISTING BUILDINGS AREA		
Phase 1: DEMO 3 EXISTING BUILDINGS	24,445	
Phase 2-10: DEMO 74 BUILDING/STRUCTURES	1,012,714	
SUBTOTAL, EXISTING BUILDINGS AREA		**1,037,159**
SITE AREAS		
Phase 1: 12.5 ACRE	544,500	
Phase 2-10: 112.5 ACRES	4,900,500	
SUBTOTAL, SITE AREAS		**5,445,000**

DEPARTMENT OF GENERAL SERVICES
REAL ESTATE SERVICES DIVISION - PROJECT MANAGEMENT AND DEVELOPMENT BRANCH
PROJECT COST SUMMARY

PROJECT:	Southern California Veterans Cemetery	CONCEPT ESTIMATE:	C6DVA71AW
LOCATION:	Irvine, Orange County	EST. / CURR'T. CCCI:	6240 / 6240
CUSTOMER:	Department of Veterans Affairs	DATE ESTIMATED:	6/14/2016
DESIGN BY:	TBD	ABMS NO:	139669
PROJECT MGR:	K. Savage	PREPARED BY:	LL
TEMPLATE:	Design / Bid / Build	DOF PROJ. I.D. NO.:	0

DESCRIPTION

Phase 1, Part 1: Site preparation and demolition (125 acres): Phase 1 of the project will include the demolition of the entire 125 acre site. Demolition includes the existing 77 buildings (1,037,139 SF), foundations, floors, floor slabs, concrete and asphalt. The demolition also includes the removal of underground utilities. Phase 1, Part 2: New Construction. Part 2A: new construction of the cemetery which encompasses approx. 12.4 acres of the property and includes rough and fine grading, utility trenching and installation, paving of drive aisles and access roads, landscaping, installation of 1,750 in-ground cremains, 3,250 columbarium niches, the administration/ maintenance complex (2,149 SF/3,849 SF), ceremonial entrance, cortege assembly area, committal service shelter (1,076 SF), flag/assembly area, and memorial walk. Part 2B: New Construction of the perimeter berms, walls, fences and associated landscaping. This portion includes the construction of the retention/detention basins and drainage swale along the south western portion of the site. This area is approximately 15.9 acres.

ESTIMATE SUMMARY

Federal Funded Scope:	
Site Demolition/Clearing	$184,300
Site Improvements	$5,445,000
Site Development	$14,518,800
Site Utilities	$1,672,900
Administration Building	$848,400
Maintenance Building & Yard	$1,252,600
Committal Shelter	$182,400
(Subtotal $24,104,400)	
State Funded Scope:	
Hazardous Waste Remediation	$3,446,200
Site Demolition & Disposal (12.5 Acres)	$2,484,700
Site Demolition (Remaining 125 Acres)	$6,205,000
Buildings Demolition & Disposal	$18,121,200
(Subtotal $30,257,100)	

ESTIMATED TOTAL CURRENT COSTS:	**$54,361,500**
Original CCCI on MAY 2016	
Adjust CCCI From 6240 to 6240	$0
ESTIMATED TOTAL CURRENT COSTS ON MAY 2016	**$54,361,500**
Escalation to Start of Construction 42 Months @ 0.25% / Mo.:	$5,708,000
Escalation to Mid Point 15 Months @ 0.25% / Mo.:	$2,038,600
ESTIMATED TOTAL CONTRACTS:	**$62,108,100**
Contingency At: 5%	$3,105,400
ESTIMATED TOTAL CONSTRUCTION COST:	**$65,213,500**

SUMMARY OF COSTS
BY PHASE

PROJECT: Southern California Veterans Cemetery
LOCATION: Irvine, Orange County
ABMS #: 139669

CONCEPT ESTIMATE: C6DVA71AW
DATE ESTIMATED: 6/14/2016

CONSTRUCTION DURATION:	30 MONTHS	
ESTIMATED CONTRACT:	$62,108,100	$62,108,100
CONSTRUCTION CONTINGENCY:	$3,105,400	$3,105,400
TOTAL:	$65,213,500	$65,213,500

CATEGORY	ACQUISITION STUDY 00	PRELIMINARY PLANS 01	WORKING DRAWINGS 02	CONSTRUCTION 03	TOTAL
ARCHITECTURAL AND ENGINEERING SERVICES					
A&E Design	$200,000	$596,000	$729,000	$525,400	$2,050,400
Construction Inspection				$1,800,000	$1,800,000
Construction Inspection Travel				$50,000	$50,000
Builders Risk Insurance					$0
Advertising, Printing and Mailing		$0	$25,000		$25,000
Construction Guarantee Inspection				$50,000	$50,000
SUBTOTAL A&E SERVICES	$200,000	$596,000	$754,000	$2,425,400	$3,975,400
OTHER PROJECT COSTS					
Special Consultants (Soil/Survey,Geot	$300,000	$600,000	$310,500	$310,500	$1,521,000
Materials Testing				$496,900	$496,900
Project/Construction Management	$75,000	$290,000	$405,000	$1,080,000	$1,850,000
Contract Construction Management			$235,000	$1,800,000	$2,035,000
Site Acquisition Cost & Fees					$0
Agency Retained Items				$300,000	$300,000
SBE/DVBE Assessment				$185,700	$185,700
School Checking			$0		$0
Hospital Checking			$0		$0
Essential Services			$0		$0
Accessibility Checking			$58,400		$58,400
Environmental Document (EIR)	$930,000	$20,000			$950,000
Due Diligence	$15,000	$15,000			$30,000
Other Costs - (SFM)		$6,000	$6,100	$50,000	$62,100
Other Costs - DTSC					$0
Other Cost - Mitigation / Surveys				$694,000	$694,000
SUBTOTAL OTHER PROJECT COSTS	$1,320,000	$931,000	$1,015,000	$4,917,100	$8,183,100
TOTAL ESTIMATED PROJECT COST	$1,520,000	$1,527,000	$1,769,000	$72,556,000	$77,372,000
LESS FUNDS TRANSFERRED	$0	$0	$0	$0	$0
LESS FUNDS AVAILABLE NOT TRANSFERRED	$0	$0	$0	$0	$0
CARRY OVER	$0	$1,520,000	$3,047,000	$4,816,000	
BALANCE OF FUNDS REQUIRED	$1,520,000	$3,047,000	$4,816,000	$77,372,000	$77,372,000

FUNDING DATA & ESTIMATE NOTES

PROJECT:	Southern California Veterans Cemetery	CONCEPT ESTIMATE:	C6DVA71AW
LOCATION:	Irvine, Orange County	DATE ESTIMATED:	6/14/2016
ABMS #:	139669		

FUNDING DATA

Chapter / Item	Phase	Amount	Totals
Fund Transfers			
N/A	0	$0	
0	0	$0	
0	0	$0	
0	0	$0	
0	0	$0	
0	0	$0	
0	0	$0	
0	0	$0	
Total Funds Transferred			$0
Funds Available Not Transferred			
N/A	0	$0	
0	0	$0	
0	0	$0	
0	0	$0	
Total Funds Available not Transferred			$0
Total Funds Transferred and Available			$0

ESTIMATE NOTES

1. The construction costs in this estimate are indexed from the CCCI Index as of the date of estimate preparation to the CCCI index that is current as of MAY 1, 2016. The project estimate is then escalated for a 15 month period to an assumed construction midpoint. Additionally, the project has been escalated to the assumed start of construction.
2. The Agency retained items included in this estimate are: service seals, grave locator, office equipment and bobcat dozer.
3. Special Consultant costs includes Survey w/topo map, Geotechnical, and Hazardous Soil Survey.
4. CEQA/NEPA to include the 125 acre site and will take approximately 21 months to complete. CEQA scope includes a public relations firm. Depending on the results of CEQA, a Construction phase cost includes potential mitigation measures: various surveys (bird and owl), Burrowing Owl mitigation fees ($325,000) in lieu of on-site passive relocation, and a temporary sound wall ($150,000).
5. This estimate assumes a $0 cost to transfer the site from the City of Irvine to the State of California.
6. This estimate does not include the cost to abate contaminated soil if discovered as a result of the hazardous soil survey, nor does this estimate include any cost for the Department of Toxic Substances Control involvement.
7. This estimate is conceptual and was not prepared from design drawings.
8. 0
9. 0
10. 0

OMB Number: 4040-0008
Expiration Date: 01/31/2019

Southern California Veterans Cemetery - Concept Plan (FAI #CAXX-XX)

BUDGET INFORMATION - Construction Programs

NOTE: Certain Federal assistance programs require additional computations to arrive at the Federal share of project costs eligible for participation. If such is the case, you will be notified.

COST CLASSIFICATION	a. Total Cost	b. Costs Not Allowable for Participation	c. Total Allowable Costs (Columns a-b)
1. Administrative and legal expenses	$ 1,884,700	$ 1,566,190	$ 318,510
2. Land, structures, rights-of-way, appraisals, etc.	$ -	$ -	$ -
3. Relocations expenses and payments	$ -	$ -	$ -
4. Architectural and engineering fees	$ 3,571,400	$ 386,300	$ 3,185,100
5. Other architectural and engineering fees	$ 4,005,500	$ 2,731,460	$ 1,274,040
6. Project inspection fees	$ 2,396,900	$ 1,759,880	$ 637,020
7. Site work	$ -	$ -	$ -
8. Demolition and removal	$ -	$ -	$ -
9. Construction	$ 62,108,100	$ 30,257,100	$ 31,851,000
10. Equipment	$ 300,000	$ -	$ 300,000
11. Miscellaneous	$ -	$ -	$ -
12. SUBTOTAL (sum of lines 1-11)	$ 74,266,600	$ 36,700,930	$ 37,565,670
13. Contingencies	$ 3,105,400	$ 1,512,900	$ 1,592,500
14. SUBTOTAL	$ 77,372,000	$ 38,213,830	$ 39,158,170
15. Project (program) income	$ -	$ -	$ -
16. TOTAL PROJECT COSTS (subtract #15 from #14)	$ 77,372,000	$ 38,213,830	$ 39,158,170
FEDERAL FUNDING			
17. Federal assistance requested, calculate as follows: (Consult Federal agency for Federal percentage share.) Enter the resulting federal share.	Enter eligible costs from line 16c Multiply X 100%		$ 39,158,170